

ABSTRACT OF THE DISCLOSURE

An electronic control system especially for non-linear loads, such as high pressure sodium (HPS) lamps, includes an active power factor correction circuit (APFC). The system provides a power factor correction of above .95; total harmonic distortion (THD) below 5%; lamp crest factor (LCF) close to unity; efficient power consumption and reliable open circuit voltage (OCV) under all power line conditions. A ballast would include integrated circuits (ICs) and a four-arm transistor bridge which is directly driven by integrated circuits. The bridge generates reversal of polarity to the load. An approximate average current feedback is derived from a load current. A resistor divider in parallel with the load provides voltage feedback. The average current feedback and voltage feedback are added together to provide an approximation of power consumed by the load, without the complex circuitry required for a true power feedback of current multiplied by voltage. That composite feedback signal is transmitted to the integrated circuit (IC) which compares it with an internal reference voltage and which adjusts the IC output to minimize the error.